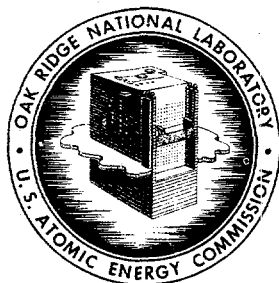


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DATE: April 27, 1962

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SUBJECT: Radioactivity in Clinch River Water

TO: A. F. Becher

FROM: K. Z. Morgan

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To: D. M. Davis
J. C. Hart

From: Environmental Monitoring Group

Subject: Radioactivity in Clinch River Water

Enclosed, Table I, are the results of analysis of the weekly composite Clinch River samples which were collected at the ORGDP water filtration plant intake, by ORGDP personnel, for ORNL. $(MPC)_w$ values for the mixture have been calculated and are included in this table. Also enclosed, Tables II and III respectively, are the dilution factors in the Clinch River during the period 2/25/62 - 4/1/62 and the radiochemical analysis of White Oak Lake effluent, March 1962. The per cent of maximum permissible concentration in the river reached a value of 27% during the week ending 4/1/62. This was a result of zero discharge of water from Norris Dam during six days of this week. A total of 261 curies of radioactivity was discharged over White Oak Dam during the month of March.

W. D. Cottrell
W. D. Cottrell

WDC:dw

Attachments

TABLE I
RADIOACTIVITY IN THE CLINCH RIVER AT ORGDP FILTRATION PLANT
March, 1962

Sample No.	Week Ending	Gross Beta c/m/mla	Gross Alpha c/m/mlb	Sr Beta 10 ⁻⁸ µc/cc	Ru Beta 10 ⁻⁶ µc/cc	(MPC) _w ^c 10 ⁻⁶ µc/cc	% (MPC) _w
G-101	3-4-62	0.096 ± 0.005	0.019	1.04 ± 0.14	0.29 ± 0.009	2.28	13.0
G-102	3-11-62	0.05 ± 0.004	0.019	0.81 ± 0.14	0.14 ± 0.004	1.66	9.3
G-103	3-18-62	0.03 ± 0.003	0.019	0.90 ± 0.14	0.08 ± 0.005	1.02	9.0
G-104	3-25-62	0.05 ± 0.004	0.019	1.35 ± 0.14	0.14 ± 0.004	1.07	14.4
G-105	4-1-62	0.27 ± 0.008	0.019	1.85 ± 0.13	0.86 ± 0.015	3.05	27.3

a Gross beta counted at 14.6% geometry based on Ru¹⁰⁶ as a standard.

b Gross alpha counted at 52% geometry.

c Maximum permissible concentration for populations in the neighborhood of a controlled area.

TABLE II

Dilution Factor in the Clinch River During
the Period 2/25/62 - 4/1/62

<u>Week Ending</u>	<u>Weekly Average</u>
3-4-62	220
3-11-62	671
3-18-62	1020
3-25-62	467
4-1-62	97

TABLE III

Radiochemical Analyses of White Oak Lake Effluent
March, 1962

<u>Isotope</u>	<u>% of Total</u>
Ru ¹⁰⁶	96.94
Zr ⁹⁵	0.22
Tre-Ce	0.57
Cs ¹³⁷	0.30
I ¹³¹	0.02
Ce ¹⁴⁴	0.14
Nb ⁹⁵	0.45
Ba ¹⁴⁰	0.02
Co ⁶⁰	0.76
Sr ⁸⁹	0.08
Sr ⁹⁰	0.49

Gross Beta 158 d/m/ml